

ABSTRACT OF THE DISCLOSURE

The invention provides a sensor for monitoring an environmental parameter in concrete comprising an enclosure for embedding in concrete; a detecting means connected to the enclosure for detecting at least one environmental parameter in concrete, the detecting means comprising at least one capacitive element for measuring capacitive change; an active material connected to the enclosure, the active material being liable to respond to the environmental parameter and the active material being operably connected to the capacitive element; a RFID chip mounted within the enclosure, the RFID chip being operably connected to the detecting means; and an antenna operably connected to the RFID chip, the antenna being operably connected to the detecting means, and the antenna being part of an L-R-C circuit whose resonance frequency shifts within an assigned frequency band. The invention also provides a MEMS-based capacitor that responds to an environmental parameter in concrete.